CLAIMS

1. A non human transgenic mammal or mammalian embryo having integrated within its genome a heterologous nucleotide sequence comprising at least a significant part of a nucleotide sequence coding for a stratum corneum chymotryptic enzyme (SCCE) or a variant thereof operably linked to a promoter that drives expression of said heterologous *scce* or a variant thereof in skin.

2. A non human transgenic mammal or mammalian embryo according to claim 1 wherein said operably linked promoter drives expression of *scce* or a variant thereof in epidermis.

3. A non human transgenic mammal or mammalian embryo according to claim 1 having integrated within its genome a heterologous nucleotide sequence comprising at least a significant part of a nucleotide sequence coding for a protein with an amino acid sequence which has a sequence identity of at least 75% to the amino acid sequence shown in SEQ ID NO:2 and which contains the partial sequence glycine-X_1-X_2- isoleucine-isoleucine-aspartate-glycine, wherein X_1 is aspartate or glutamate and X_2 is lysine or argininine, operably linked to a promoter that drives expression in skin.

4. A non human transgenic mammal or mammalian embryo according to claim 1 having integrated within its genome a heterologous nucleotide sequence comprising at least a significant part of a nucleotide sequence coding for a protein with an amino acid sequence which has a sequence identity of at least 75% to the amino acid sequence shown in SEQ ID NO:2 and which contains the partial sequence residue X_3-asparagine-X_4-X_5-X_6 X_7-X_8-serine, wherein X_3 is any amino acid residue, X_4 is any amino acid residue, X_5 is a cystein residue X_6 is any amino acid., X_7 is a glycine residue, X_8 is an aspartate residue, and the serine is the active serine residue characteristic of serine proteases, operably linked to a promoter that drives expression in skin.

5. A non-human transgenic mammal or mammalian embryo according to claim 1 wherein the promoter is a ubiquitous promoter.

6. A non-human transgenic mammal or mammalian embryo according to claim 1 selected from the group consisting of rodents, cats and dogs.

7. A non human transgenic mammal or mammalian embryo according to claim 6 which is a rodent selected from the group consisting of mice, rats and rabbits.

8. A non-human transgenic mammal or mammalian embryo according to claim 7 which is selected from the group consisting of mice.

9. A non human transgenic mammal or mammalian embryo according to claim 1, wherein the nucleotide sequence comprises a significant part of a DNA sequence coding for human SCCE as shown in SEQ ID NO:1.

10. A non human transgenic mammal or mammalian embryo according to claim 1, wherein the nucleotide sequence codes for a significant part of the peptide shown in SEQ ID NO. 2.

11. A non human transgenic mammal or mammalian embryo according to claim 10, wherein the DNA sequence codes for the peptide corresponding to amino acid no. -7 through no. 224 of the amino acid sequence shown in SEQ ID NO. 2.

12. A non human transgenic mammal or mammalian embryo according to claim 10, wherein the DNA sequence codes for the peptide corresponding to amino acid no. 1 through no. 224 of the amino acid sequence shown in SEQ ID NO. 2.

13. A non human transgenic mammal or mammalian embryo according to claim 1, wherein the DNA sequence codes for the peptide shown in SEQ ID NO. 2.

14. A non human transgenic mammal or mammalian embryo according to claim 1, wherein the DNA sequence comprises the DNA shown in SEQ ID NO. 1.

15. A non-human transgenic mammal or mammalian embryo according to claim 1, wherein the DNA sequence is SEQ ID NO:1.

16. A non-human transgenic mammal or mammalian embryo according to claim 1, wherein the promoter is a heterologous promoter.

17. A non-human transgenic mammal or mammalian embryo according to claim 16, wherein the promoter is an SV40 promoter.

18. A non-human transgenic mammal or mammalian embryo according to claim 17, wherein the promoter is the SV40 early promoter.

19. A non-human transgenic mammal or mammalian embryo according to claim 1, wherein the mammal exhibits an abnormal phenotype.

20. A non-human mammal or mammalian embryo according to claim 19, wherein the mammal exhibits an abnormal skin phenotype.

21. A non-human mammal or mammalian embryo according to claim 19, wherein the mammal exhibits an abnormal phenotype or predisposition for cancer.

22. A non-human mammal or mammalian embryo according to claim 19, wherein the mammal exhibits a predisposition for ovarian cancer.

23. A non-human mammal or mammalian embryo according to claim 20, wherein the mammal exhibits an abnormal skin phenotype resembling a skin disease.

24. A non human mammal or mammalian embryo according to claim 23, wherein the mammal exhibits epidermal hyperkeratosis, achantosis, epidermal and/or dermal inflammation and/or pruritus.

25. A non human mammal or mammalian embryo according to claim 24, wherein the mammal exhibits an abnormal skin phenotype resembling inflammatory skin diseases selected from the group of diseases consisting of epidermal hyperkeratosis, acanthosis, epidermal inflammation, dermal inflammation and pruritus.

26. A non-human mammal or mammalian embryo according to claim 23, wherein the mammal exhibits an abnormal skin phenotype resembling psoriasis.

27. A non human mammal or mammalian embryo according to claim 23, wherein the mammal exhibits an abnormal skin phenotype resembling chronic atopic dermatitis or chronic eczema.

28. A non-human mammal or mammalian embryo according to claim 23, wherein the mammal exhibits an abnormal skin phenotype resembling inherited skin diseases with epidermal hyperkeratosis.

29. A method for making a transgenic non human mammal or mammalian embryo having integrated within its genome a heterologous nucleotide construct comprising at least a significant part of a nucleotide sequence coding for a stratum corneum chymotryptic enzyme (SCCE) or a variant thereof operably linked to a promoter that drives expression of *scce* or a variant thereof in skin, the method comprising

(a) constructing and amplifying a nucleotide sequence comprising at least a significant part of a nucleotide sequence coding for a stratum corneum chymotryptic enzyme (SCCE) or a variant thereof operably linked to a promoter that drives expression of *scce or a variant thereof* in skin,

(b) introducing into a non-human cell said heterologous nucleotide construct,

(c) using said cell or the progeny of said cell to create a number of putative transgenic non-human mammals or mammalian embryos,

(d) selecting said non-human mammal or mammalian embryo having said heterologous nucleotide construct integrated within its genome.

30. A method for making a transgenic non-human mammal or mammalian embryo according to claim 29 wherein said operably linked promoter drives expression of *scce* or a variant thereof in epidermis.

31. A method for making a transgenic non human mammal according to claim 29, where the mammal exhibits an abnormal phenotype which is selected from the group of abnormal phenotypes consisting of predisposition for cancer, predisposition for ovarian cancer and a phenotype resembling a skin disease including a phenotype resembling epidermal hyperkeratosis, achantosis, epidermal inflammation, dermal inflammation, pruritus, psoriasis, chronic atopic dermatitis or chronic eczema.

32. A method according to claim 29 comprising introducing the SCCE-construct into an ovum or embryo of the mammal.

33. A method according to claim 29 comprising microinjecting the SCCE-construct into embryonal stem cells of the mammal.

34. A method according to claim 29 comprising microinjecting the SCCE-construct into C57BL/6JxCBA-f2 mice ovum or embryos.

35. A method according to claim 29 comprising introduction of the SCCE-construct into C57BL/6JxCBA-f2 mice ova or embryos and breeding the resulting mice with C57BL/6JxCBA or with C57BL/6J to obtain transgenic progeny and stable mouse lines.

36. A method of screening for a compound or composition effective for the prevention or treatment of an abnormal or unwanted phenotype, the method comprising

(a) administering a compound or composition to a transgenic non human mammal having integrated within its genome a nucleotide sequence coding for at least a significant part of SCCE operably linked to a promoter that drives expression of the *scce* in an organ, wherein the rodent exhibits an abnormal phenotype,

(b) evaluating the appearance of the relevant organ and/or the behavior of a mammal treated according to step (a), and

(c) comparing the appearance of the relevant organ and/or the behavior of a treated rodent with an untreated control mammal.

37. A method according to claim 36 wherein the organ is the ovaries.

38. A method according to claim 36 wherein the organ is the skin.

39. A method according to claim 38 of screening for a compound or composition effective for the prevention or treatment of inflammatory skin diseases selected from the group of diseases consisting of epidermal hyperkeratosis, acanthosis, epidermal inflammation, dermal inflammation and pruritus.

40. A method according to claim 38 of screening for a compound or composition effective for the prevention or treatment of atopic dermatitis or eczema.

41. A method according to claim 38 of screening for a compound or composition effective for the prevention or treatment of acne.

42. A method according to claim 38 of screening for a compound or composition effective for the prevention or treatment of inherited skin diseases with epidermal hyperkeratosis.

43. A method according to claim 36 of screening for a cosmetic composition.

44. A method of identifying a compound or composition effective for the prevention or treatment of an abnormal or unwanted phenotype, the method comprising

(a) administering a compound or composition to a transgenic mammal having integrated within its genome a nucleotide sequence coding for at least a significant part of SCCE operably linked to a promoter that drives expression of the *scce* in an organ, wherein the rodent exhibits an abnormal phenotype,

(b) evaluating the appearance of the relevant organ and/or the behavior of a mammal treated according to step (a), and

(c) comparing the appearance of the relevant organ and/or the behavior of a treated rodent with an untreated control mammal.

(d) identifying the compound or composition as being effective for the prevention or treatment of the abnormal or unwanted phenotype.

45. A method according to claim 44 wherein the organ is the ovaries.

46. A method according to claim 44 wherein the organ is the skin.

47. A method according to claim 46 of identifying a compound or composition effective for the prevention or treatment of inflammatory skin diseases selected from the group of diseases consisting of by epidermal hyperkeratosis, acanthosis, epidermal inflammation, dermal inflammation and pruritus.

48. A method according to claim 46 of identifying a compound or composition effective for the prevention or treatment of atopic dermatitis or eczema.

49. A method according to claim 46 of identifying a compound or composition effective for the prevention or treatment of acne.

50. A method according to claim 46 of identifying a compound or composition effective for the prevention or treatment of inherited skin diseases with epidermal hyperkeratosis.

51. A method according to claim 46 of identifying a cosmetic composition.

52. The mammal of claim 1, where said heterologous nucleotide sequence comprises a nucleotide sequence coding for an SCCE.

53. The mammal of claim 1, where said significant part encodes at least 50 amino acids of said SCCE or variant thereof.

54. The mammal of claim 52, where said significant part encodes at least 50 amino acids of said SCCE.

55. The mammal of claim 3, where said percentage sequence identity is determined after aligning the first noted amino acid sequence to the sequence of SEQ ID NO: 2 using the version of XBLAST which was current as of Feb. 11, 2002, and using the default scoring matrix and gap penalties set by said version.

56. The mammal of claim 3, where said percentage sequence identity is determined after aligning the first noted amino acid sequence to the sequence of SEQ ID NO: 2 using the version of XBLAST which was current as of Feb. 9, 2001, and using the default scoring matrix and gap penalties set by said version.

57. The method of claim 36 where said significant part of SCCE is at least 50 amino acids of SCCE.

58. A method of screening for a compound or composition effective for the prevention or treatment of an abnormal or unwanted phenotype, the method comprising
(a) administering a compound or composition to a transgenic non human mammal having integrated within its genome a

nucleotide sequence coding for a protein which is at least 75% identical in amino acid sequence to SCCE or to a portion of SCCE amounting to at least 50 consecutive amino acids, operably linked to a promoter that drives expression of the nucleotide sequence "encoding" said protein in an organ, whereby the rodent exhibits an abnormal phenotype,
(b) evaluating the appearance of the relevant organ and/or the behavior of a mammal treated according to step (a), and
(c) comparing the appearance of the relevant organ and/or the behavior of a treated rodent with an untreated control mammal.